

AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions, listing, of claims in the specification.

LISTING OF CLAIMS:

Claims 1-5 (canceled).

Claim 6 (original) A method for controlling a fuel cell system comprising a fuel cell stack, the method comprising the following steps:

- (1) initiating a star-up routing to start supply of air and hydrogen to the fuel cell stack through air supply conduit and hydrogen supply conduit respectively;
- (2) detecting hydrogen pressure inside the hydrogen supply conduit;
- (3) based on the detected hydrogen pressure, selectively opening/closing a hydrogen valve mounted to the hydrogen supply conduit for controlling hydrogen flow rate through the hydrogen supply conduit;
- (4) detecting output voltage and current of the fuel cell stack; and
- (5) based on the detected current, selectively driving an air pumping device mounted to the air supply conduit, in a pulse width modulated manner, for controlling air flow rate through the air supply conduit.

Claim 7 (original) The method as claimed in Claim 6, wherein the start-up routing comprises the following steps:

- (a) opening the hydrogen valve to cause the hydrogen flow to the fuel cell stack;
- (b) actuating the air pumping device to supply a maximum flow rate of air to the fuel cell stack for a given period of time; and
- (c) controlling the air pumping device to supply air in a minimum air flow rate to the fuel cell stack.

Claim 8 (original) The method as claimed in Claim 7 further comprising a step for opening the hydrogen valve for a given period of time in order to expel impure gases out of the fuel cell stack and the hydrogen supply conduit.

Claim 9 (original) The method as claimed in Claim 6 further comprising a step of controlling temperature of the fuel cell stack within a preset range.

Claim 10 (original) The method as claimed in Claim 6, wherein the opening/closing operation of the hydrogen valve is done with a pulse signal.

Claim 11 (original) The method as claimed in Claim 6, wherein the control of air flow rate comprises:

- (a) setting the air flow rate to a minimum level when an output current of the fuel cell stack is smaller than a lower limit;
- (b) setting the air flow rate to three times of a required level in accordance with the output current when the output current is greater than the lower limit but smaller than an upper limit; and
- (c) setting the air flow rate to a maximum level when the output current is greater than the upper limit.

Claim 12 (original) The method as claimed in Claim 6, wherein the step of driving the air pumping device comprises controlling the air pumping device in accordance with the output voltage of the fuel cell stack whereby when the output voltage is lower than a preset lower bound, the air pumping device is caused to provide air flow with a maximum air flow rate for a given period of time and then resumes a regular flow rate and at the same time, the hydrogen exhaust valve is opened for a given period of time and then shut down.

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Claim 13 (original) The method as claimed in Claim 12 further comprising shutting down the fuel cell system when the output voltage of the fuel cell stack is below a present safety threshold of output voltage.